

CLAIMS

1. Self-closing diaphragm valve (V) with a slit diaphragm (1) and a dome-like securing part (2) associated with a mounting region (6) of the diaphragm (1), characterized in that the securing part (2) is connected in a positively locking or integral manner to the diaphragm (1) and is formed in order to be secured in a closure part (7) by latching or over-engagement on the outer periphery of the circumference.
2. Self-closing diaphragm valve according to Claim 1 or in particular according thereto, characterized in that the diaphragm (1) rests at least centrally on a plate part (34).
3. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the plate part (34) is formed to taper in the direction of the diaphragm (1).
4. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the plate part (34) tapers in a step-like manner.
5. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the diaphragm (1) rests with prestressing on the plate part (34) or vice versa.
6. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the securing part (2) is formed as an annular flat part.
7. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the cross-section of the

securing part (2) converges in the direction of its center.

- 5 8. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the securing part (2) has an outer shape which corresponds to a hollow section and on which the diaphragm (1) rests.
- 10 9. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the securing part (2) does not engage around the diaphragm (1).
- 15 10. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the securing part (2) engages around the diaphragm (1).
- 20 11. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that that cross-sectional length of the diaphragm (1) which does not have the securing part (2) engaging around it but coincides  
25 therewith is greater than the length around which the securing part engages.
- 30 12. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the diaphragm (1) is connected integrally to the securing part (2) by means of an adhesion promoter (10).
- 35 13. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the diaphragm (1) is connected to the securing part (2) by two-component injection molding.

14. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the radius of curvature (R) of the diaphragm (1) is between the dimension of the diameter (D) and that of the radius, preferably four fifths of the diameter (D).

15. Self-closing diaphragm valve according to one or more of the preceding claims or in particular according thereto, characterized in that the diaphragm (1) is produced separately from the securing part (2) and, prior to connection to the securing part (2), is configured with a planar surface.

16. Closure (8) which is produced by plastic injection molding and is intended for a dispensing container, for example a preferably blow-molded bottle, the closure (8) having a self-closing diaphragm valve (V) which interacts with a securing part (2), characterized in that the diaphragm (1), which is of dome-like configuration even in the free-span region, is connected in a positively locking or integral manner to the securing part (2), the securing part (2) being secured in the closure (8) by latching.

17. Closure according to Claim 16 or in particular according thereto, characterized in that the closure part (7), which encircles the securing part (2) on the outside, acts on the diaphragm (1), at the same time, in the manner of a cutting edge in the region of overlap with the securing part (2).

18. Closure according to Claims 16 and 17 or in particular according thereto, characterized in that the diaphragm (1) has a deflecting holder (27) of the closure part (7), the deflecting holder having apertures (29), positioned beneath it.

19. Closure according to Claims 16 to 18 or in particular according thereto, characterized in that a crosspiece (28) of the deflecting holder (27) is assigned to the slit (4) of the diaphragm (1) in vertical projection.

20. Closure according to Claims 16 to 19 or in particular according thereto, characterized in that the deflecting holder (27) is positioned at a free distance (y) beneath the diaphragm (1).

21. Closure according to Claim 16 or in particular according thereto, characterized in that the diaphragm (1) rests at least centrally on the plate part (34).

22. Closure according to one or more of the preceding claims or in particular according thereto, characterized in that the plate part (34) is formed to taper in the direction of the diaphragm (1).

23. Closure according to one or more of the preceding claims or in particular according thereto, characterized in that the plate part (34) tapers in a step-like manner.

24. Closure according to one or more of the preceding claims or in particular according thereto, characterized in that the diaphragm (1) rests with prestressing on the plate part (34) or vice versa.

25. Closure according to Claim 16 or in particular according thereto, characterized in that the closure (8) has a closure lid (22), in that a cup (42) which is open at the bottom is integrally formed on the closure lid (22) in the region of overlap with the diaphragm (1), and the free end periphery (43) of the cup (42), in the closed state, is seated in a sealing manner on the diaphragm (1), and in that the plate part (34),

which is attached via resilient arms (37), bears beneath the diaphragm (1).

26. Closure according to Claim 25 or in particular  
5 according thereto, characterized in that the free outer periphery (46) of the cup (42) is directly adjacent to the inner wall (44) of the diaphragm (1) in the closed state.

10 27. Closure according to one or more of the preceding Claims 25, 26 or in particular according thereto, characterized in that the outer periphery (46) of the cup (42) bears in a sealing manner against the inner periphery (47) of the securing part (2).

15 28. Closure according to one or more of the preceding Claims 25 to 27 or in particular according thereto, characterized in that the securing part (2), associated with the outer periphery (46) of the cup (42), has a  
20 sealing profiling (48).

29. Closure according to one or more of the preceding Claims 25 to 27 or in particular according thereto, characterized in that the outer periphery (46) of the  
25 cup (42) has longitudinal ribs (71) which are seated on the securing part (2) in the closed position of the closure (8).

30 30. Closure according to one or more of the preceding Claims 25 to 28 or in particular according thereto, characterized in that slits (4) of the diaphragm (1) are provided such that they project beyond the plate part (34) in the radially outward direction.

35 31. Closure according to Claim 16 or in particular according thereto, characterized in that the periphery of the closure lid (22) has a latching button (51) of the closure (8) passing through it, it being possible for this latching button to be used for tamperproof

sealing, and in that the latching button (51) has a surface which is structured in a rib-like manner.

32. Closure according to Claim 31, characterized in  
5 that vertical ribs (52) are formed.

33. Process for producing a self-closing diaphragm valve (V) with a diaphragm (1) fitted in an annular securing part (2), the diaphragm (1) consisting of an  
10 elastomer, in particular a silicone material, characterized in that, in the first instance, the securing part (2) is produced by plastic injection molding, and in that the elastomer material (59) is then added in a fluid state to the securing part (2)  
15 accommodated in a mold (60) and, with the aid of a counter-mold (63), the elastomer material (59) is distributed in order to form the diaphragm as desired.

34. Process according to Claim 33 or in particular  
20 according thereto, characterized in that the elastomer material (59), which cures preferably by a crosslinking reaction, is connected in an integral and/or positively locking manner to the securing part (2), rear-engagement regions (57) being formed in respect of the  
25 positive locking.

35. Process according to one or more of the preceding Claims 33, characterized in that the elastomer material (59) is prepared for application by means of an  
30 extruder, and in that, in a following processing step, a slit (4) is formed in order to provide a dispensing opening.

36. Self-closing diaphragm valve (V) which is  
35 accommodated in an annular securing part (2), produced by plastic injection molding, and has a diaphragm (1) made of an elastomer material (59) with a slit (4) for forming a dispensing opening when acted upon by pressure, characterized in that the diaphragm (1), when

formed in a manner in which it is free of cut edges on its circumferential periphery (58), is connected in a positively locking and/or integral manner to the securing part (2).